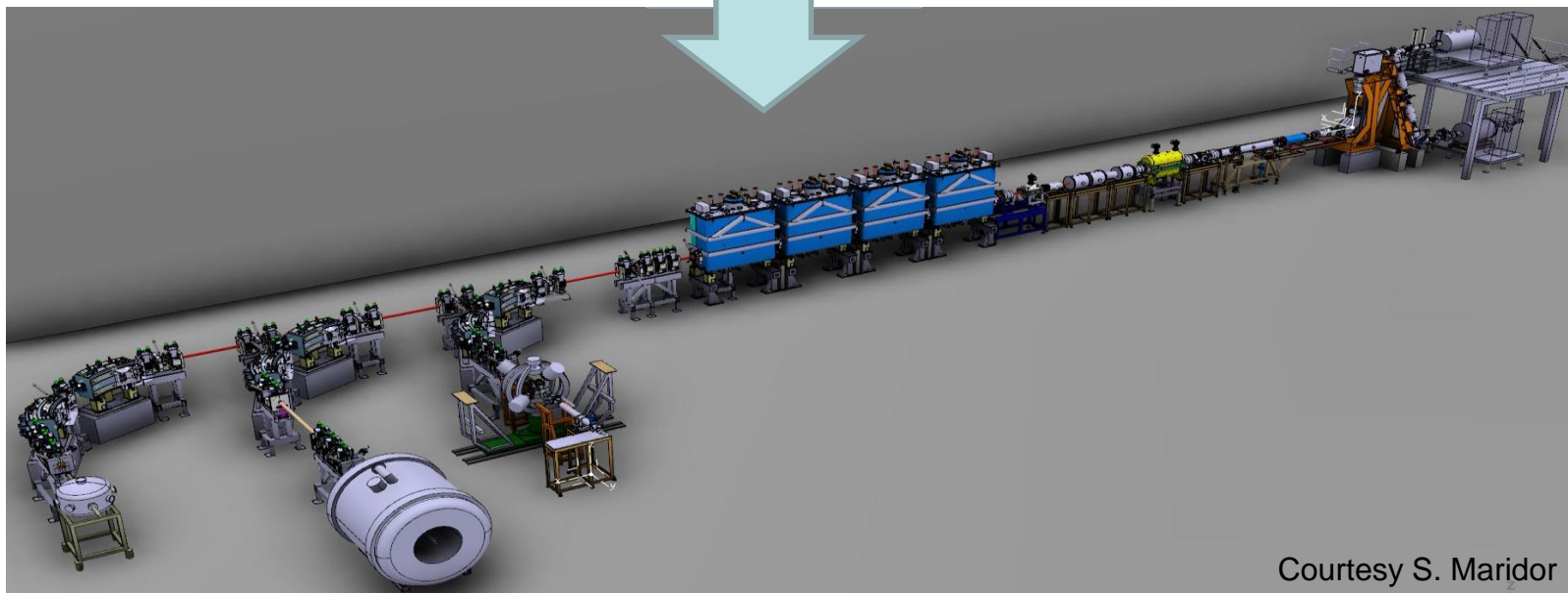
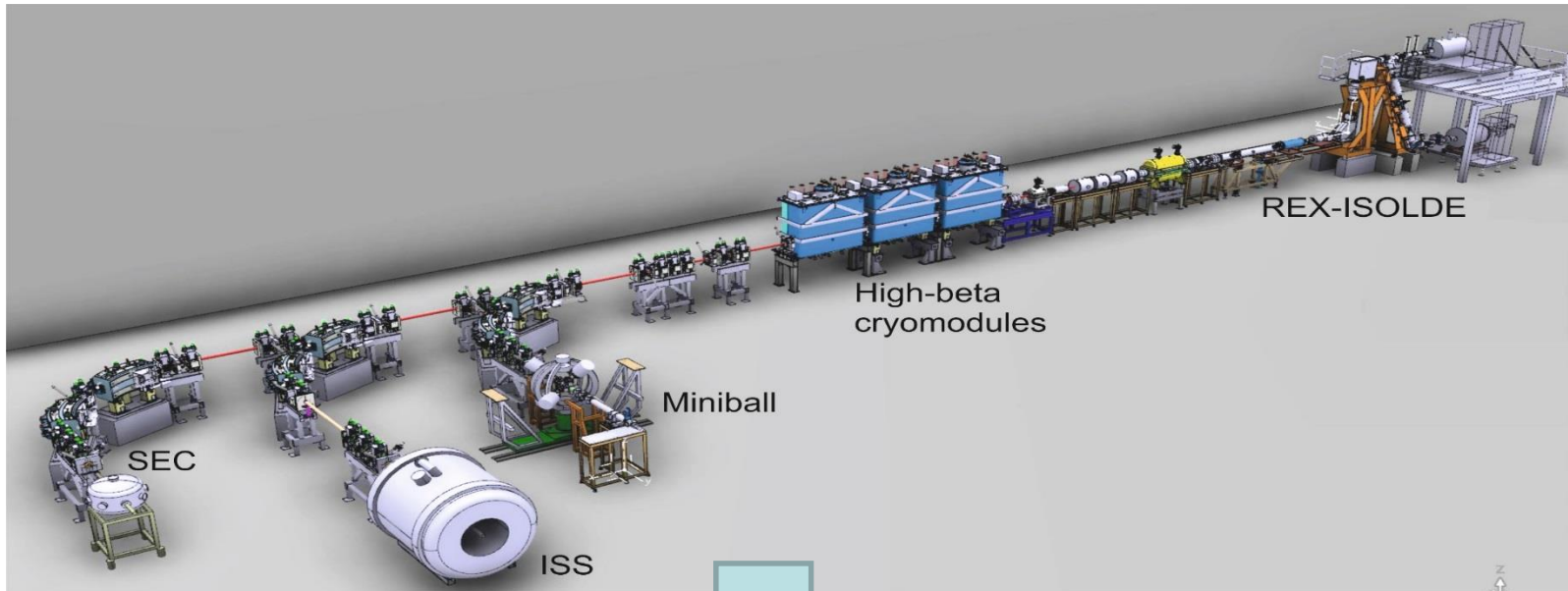




# Status HIE ISOLDE installation and shutdown work

81st ISCC meeting 6 Feb 2018, CERN

Erwin Siesling

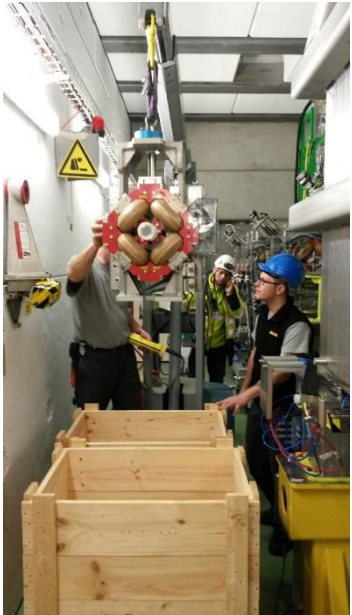
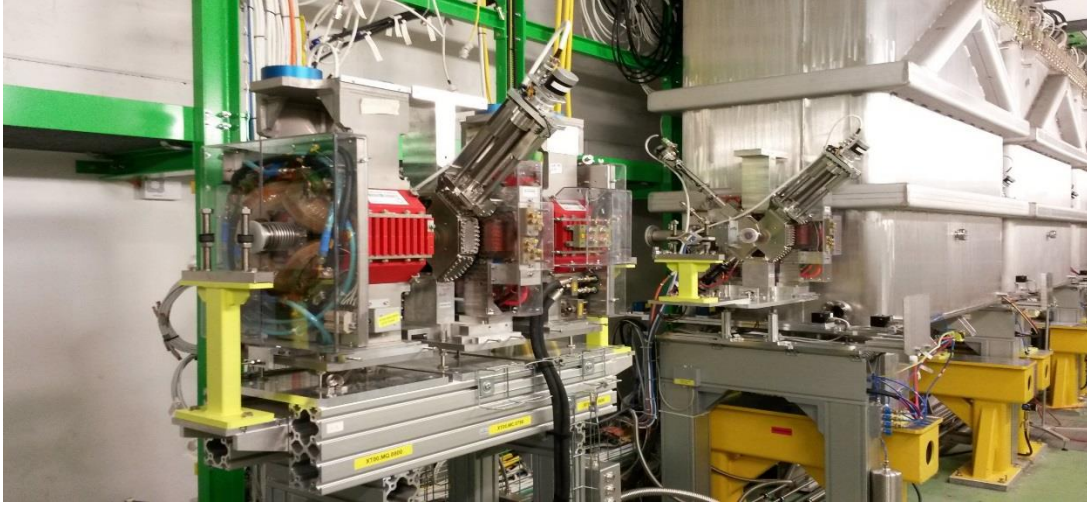


## Main activities stage 2b:

- 1) Preparations for the installation of CM4:**
  - Instrumentation cabling (1<sup>st</sup> cable campaign)
  - removal of the doublet in XT00
  - dismounting of the intertank sectors
  - Installation of the CM4 feet and XLN6 intertank support
- 2) Installation of CM4 in the tunnel:**
  - transport and installation
  - mounting of the intertank sectors
  - alignment CM4 + intertank sectors
  - BCAM alignment system installation
  - CM4 top-plate: cryo flexibles, He exhausts, JB5 bypass, vacuum, RF, LVDT, instr. cabling, Solenoid current leads, etc.
- 3) Cryo dewar functional tests + maintenance of the compressor station and cold box**
- 4) Repair of the Cryo Distribution System by CRIOTEC:**
  - dismounting all Jumper Box covers for repair inside
  - opening cryo distribution line for repair spacers and isolation and to improve routing inner tubing
- 5) REX RF maintenance**
- 6) XT00 WIC recommissioning**
- 7) Silicon detector XT02 & 03 cabling (2<sup>nd</sup> cable campaign)**
- 8) Others: Installation Solenoid power supply, CM4 RF amplifiers, ISS He filling, tunnel roof fences, REX power supplies consolidation (YETS)**

# Installation work Dec/early Jan

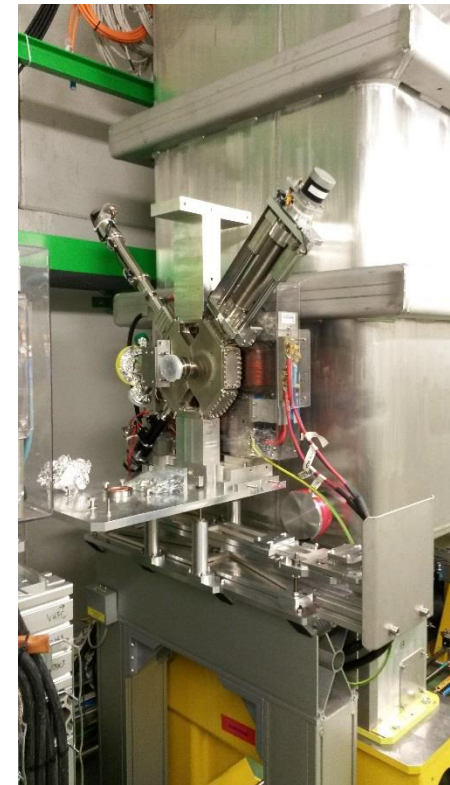
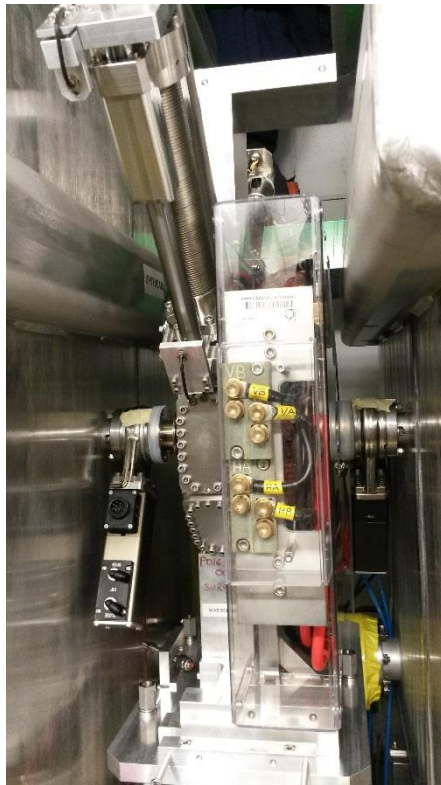
- Preparations XT00 line in the tunnel: Dismount doublet elements and intertank XLN5
- Installation of the CM4 feet and intertank XLN6 support

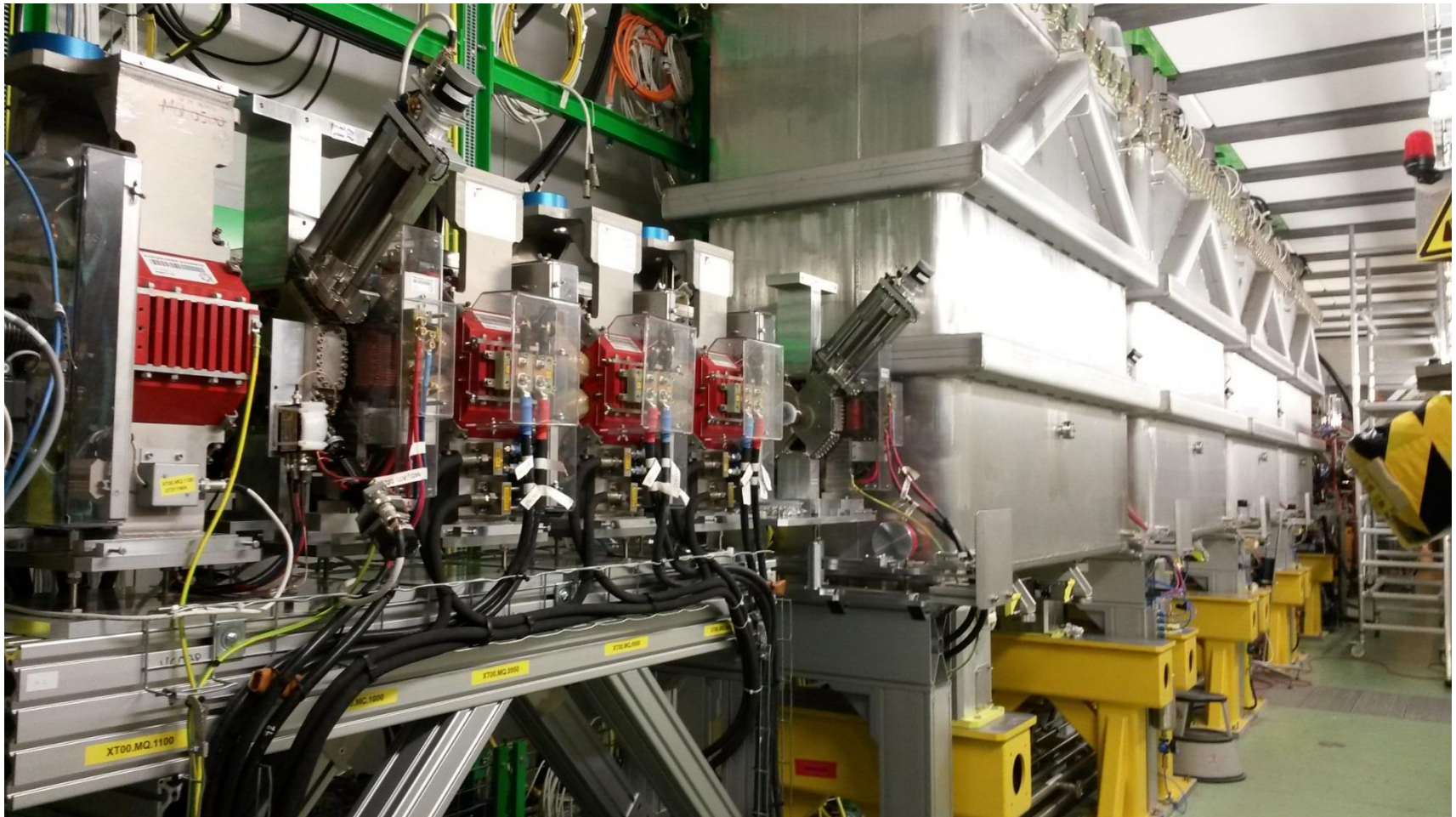




## Tunnel installation work:

- Installation intertank XLN5 & 6 done
- Alignment of CM4 and intertanks done
- Reconnection DC and water done
- Installation of the BCAM system ongoing (wk 5 Feb)





## Planning issues:

- **Vacuum** installation work on CM4 has been delayed due to manpower (YETS shutdown work at all other machines). Starting date moved from 29 Jan to 19 Feb. This does NOT affect any other activities on CM4 and milestones for CM4 and Beam commissioning can be kept.
- **Cryogenics** installation work on CM4 has been delayed due to manpower (BA6 Crab cavities installation work (LHC)). Starting date moved from 25 Jan to 12 Feb. This DOES affect other activities: other (fragile) CM4 top-plate related work cannot start until cryo work has finished. However due to sufficient margin in the planning the milestones for Cryo cooldown, CM4 and Beam commissioning can be kept.

## CM4 bottom & top-plate infrastructure:



Vacuum underneath



Cryo conn. top-plate



Cryo flex.& He exhausts



Top-plate RF, motors, instr.



## Compared to fully installed CM3 bottom & top-plate infrastructure:



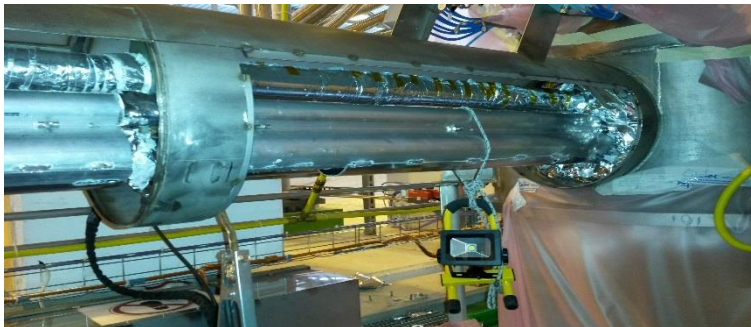
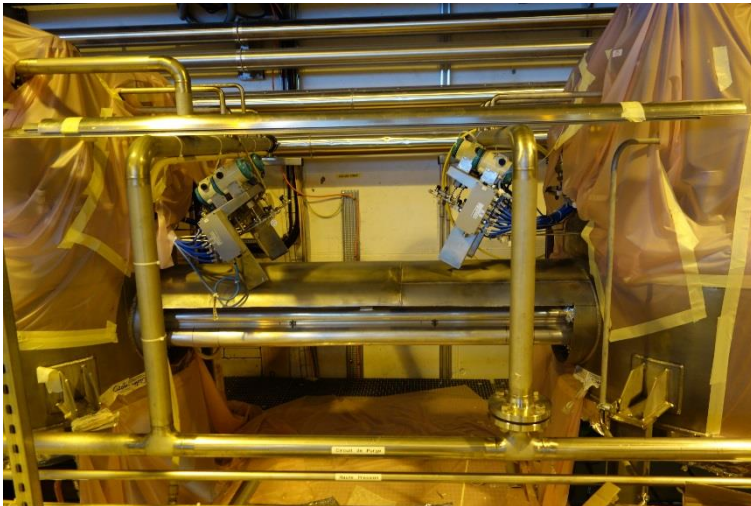
## Compressor and Cold Box

- Dewar functional tests done Dec.
- Preventive and corrective maintenance (10.000hr)
- To be ready for cooldown 23 March



## Cryo Distribution System repair by CRIOTEC

- Dismounting of all covers for repair inside the Jumper Boxes
- Opening cryo distribution line for repair spacers and isolation and to improve routing inner tubing
- To be ready for reception tests 5 March



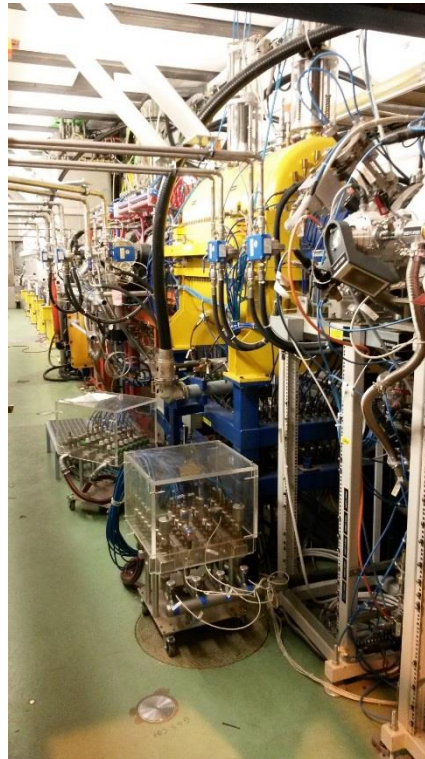
## Cryo Distribution System repair by CRIOTEC

- Dismounting of all covers for repair inside the Jumper Boxes
- Opening cryo distribution line for repair spacers and isolation and to improve routing inner tubing
- To be ready for reception tests 5 March



## REX RF maintenance and repair

- Overall inspection, maintenance water system RF room and tunnel done
- Tuners maintenance and set-up of new tuning ranges done
- Maintenance, cleaning and refurbishment of power supplies and amplifiers done
- IH Structure suspected to have issues with internal water circuits. Manifolds to be replaced.  
Consolidation points for LS2
- Water (20 degree mixed) bypass installed for easy filter change
- Tests of water circuits and RF tests (LLRF, calibration, tuning ranges) coming up



## ISS at XT02 installation

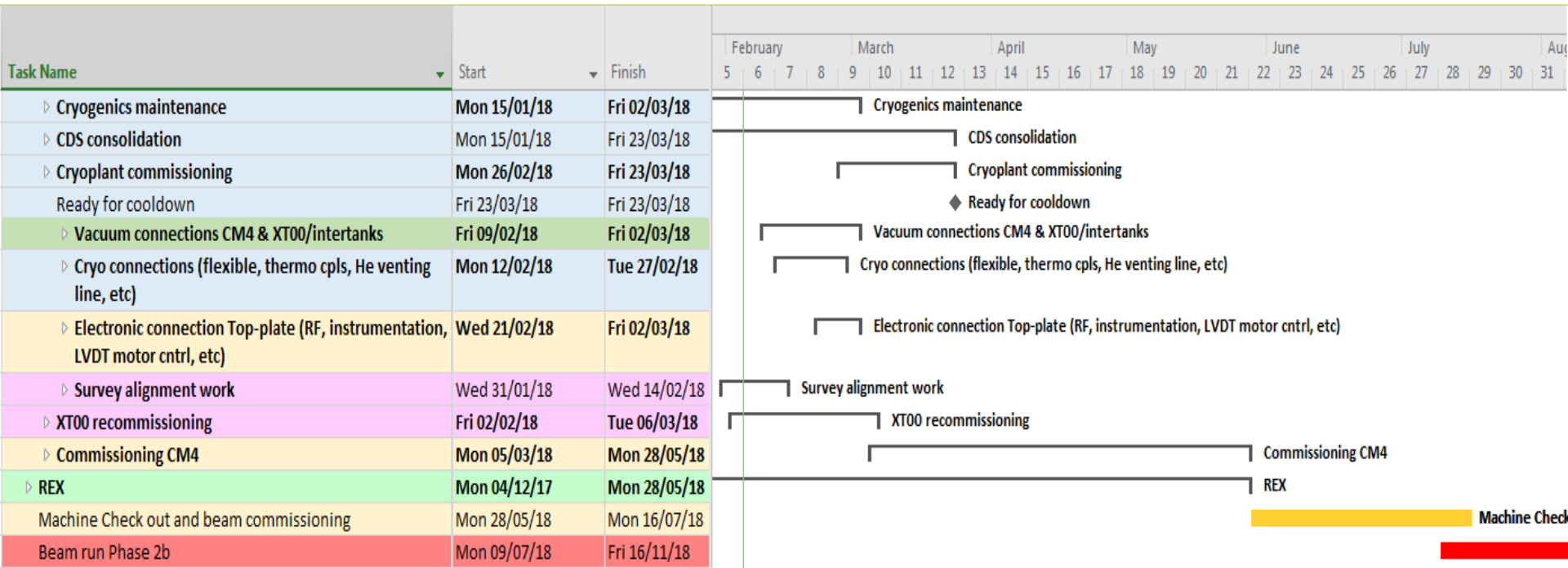
- Shielding successfully installed Nov 2017
- Field mapping done
- Stable beam tests successfully done using HIE ISOLDE Dbox with FC and Slits. No significant change of shape or intensity when ramping up the ISS magnet (2.5 T)
- End flanges sent off for feedthrough modification (detector cabling)
- Set-up prepared for He filling (wk 12 Feb)



# Planning for phase 2b

## (new) Planning for remaining activities of phase 2b

- Change of starting dates for the vacuum work on CM4 and XT00 as well as the Cryo work on CM4 required adaptation of the planning.
- To keep impact on other CM4 top-plate activities minimal Cryo work will start first on the flexibles and He exhausts followed by modification of Jumper Box 5 (bypass)
- Due to sufficient contingency and reshuffling of some of the activities the milestones for Commissioning of CM4 (5 March), Cooldown of the cryo modules (26 March), Machine check-out and beam commissioning (28 May) can be kept.
- Start of physics foreseen as of 9 July.



## Installation of phase 2b is on schedule

- CM4 is installed and aligned.
- Infrastructure CM4 being installed: Vacuum and cryo later starting dates are accounted for on the (modified) planning.
- XT00 modification done (doublet dismounted). Modification requires WIC re-commissioning.
- Cryogenics maintenance ongoing. (aim: 23 March ready for cooldown)
- Cryogenics Distribution System repair by CRIOTEC ongoing and on schedule. (aim: 5 March start of reception tests, 23 March ready for cooldown).

Attention: It became clear to the cryo group that a possible phase 3 will not only require consolidation of the cryoplant but also of the CDS

- REX RF maintenance on track. LS2 consolidation necessary of the water distribution system for IHS (manifolds). Probably also circuits inside IHS.
- ISS integrated at XT02.
- Silicon detector cabling will be installed in March for XT02 & 03.

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